Amendments to the Drawings:

Sheets 1/8 and 2/8 have been amended.

Fig. 1 has been amended by adding the reference character "25" to identify the switch element, and by adding a double ended arrow to illustrate the two switching positions of the switch 25.

Fig. 2 has been amended by adding the reference character "65" to identify the switch element, and by adding a double ended arrow to illustrate the two switching positions of the switch 65.

Attachment: Replacement Sheets

Annotated Sheets Showing Changes

REMARKS/ARGUMENTS

Amendments to Specification

Amendments have been made in the specification by replacing the paragraphs starting on page 2, line 9, page 3, line 13, page 6, line 1 and page 8, line 11. On page 2, an explicit reference to the switch 25 shown in Figure 1, and a brief summary of its operation were added. On pages 3 and 6, the same minor typographical errors were corrected and the statements of invention were amended in accordance with the amendments to claims 1 and 16. On page 8, an explicit reference to the switch 65 shown in Figure 2, and a brief summary of its operation were added.

The amendments to the specification have been made in response to the Examiner's objections raised in paragraphs 1 and 2 of the Office Action.

Amendments to Drawings

Fig. 1 has been amended by adding the reference character "25" to identify the switch element, and by adding a double ended arrow to illustrate the two switching positions of the switch 25.

Fig. 2 has been amended by adding the reference character "65" to identify the switch element, and by adding a double ended arrow to illustrate the two switching positions of the switch 65.

The amendments to the drawings have been made in response to the Examiner's objections in paragraph 1 of the Office Action.

Status of Claims

Claims 1 to 29 remain in the application.

Claim Amendments

Claims 1 and 16 have been amended to delete the extraneous "(" and to correct the grammatical error identified by the Examiner.

The amendments to the claims have been made in response to the Examiner's objections in paragraph 3 of the Office Action, and to correct minor antecedent and typographical issues.

35 U.S.C § 102 Claim Rejections

In paragraph 5 of the Office Action, the Examiner has rejected claims 1-29 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,103,459 (Gilhousen).

Before setting forth a discussion of the prior art applied in the detailed action, it is respectfully submitted that controlling case law has frequently addressed rejections under 35 U.S.C. § 102. “For a prior art reference to anticipate in terms of 35 U.S.C. § 102, every element of the claimed invention must be identically shown in a single reference.” *Diversitech Corp. v. Century Step, Inc.*, 850 F. 2d 675, 677, 7 U.S.P.Q. 2d 1315, 1317 (Federal Circuit 1988). “If any claim, element, or step is absent from the reference that is being relied upon, there is no anticipation.” *Closter Speedsteel AB v. Crucible, Inc.*, 793 F. 2d 1565, 230 U.S.P.Q. 81 (Federal Circuit 1986). The following analysis of the present rejections is respectfully offered with guidance from the foregoing controlling case law decisions.

To begin, it is respectfully submitted that key features of the rejected independent claims 1 and 16 are not taught or even suggested by Gilhousen. Specifically, Gilhousen does not teach a method of decoding M x N symbols (claim 1), or an apparatus for decoding M x N symbols (claim 16), in which a first codeword of length N of a first set of K codewords has been spread by a second codeword of length M of a second set of L codewords, **the first codeword identifying a first information** and **the second codeword identifying a second information**, the method\apparatus comprising *inter alia*:

> "**a first parallel code multiplying operation** ... producing L first output symbols, each of the L output first output symbols being associated with one of the L codewords; for each of at least one codeword of said set of L codewords: for a set of N consecutive first output symbols associated with the codeword, ... **a respective second parallel code multiplying operation** ... to produce a set of K second output symbols, each second output symbol being associated with one of

the K codewords and with said codeword of the set of said L codewords; determining an overall maximum of the second output symbols output of said second parallel code multiplying operations."

In the present invention, as defined in the rejected independent claims, a first parallel code multiplying operation and a second parallel code multiplying operation are used to decode M x N symbols and recover a first codeword and a second codeword identifying a first information and a second information respectively. For example, in the embodiment shown in Figure 4, the first information identified by the first codeword is a Channel Quality Indicator (CQI) value, while the second information identified by the second codeword is a Walsh cover ID. In this embodiment, the Walsh cover ID is used to identify a cell sector and the CQI value provides a measure of the channel quality of that cell sector.

Applicant respectfully submits that Gilhousen fails to teach such a feature.

In rejecting independent claims 1 and 16 under 35 U.S.C. § 102 in paragraph 5 of the Office Action, the Examiner points to column 10, lines 4-68 and column 11, lines 1-17 in support of the rejection, alleging that these portions of Gilhousen disclose "performing a first parallel code multiplying operation" and "performing a respective second parallel code multiplying operation". These portions of Gilhousen merely state that data transmitted from a cell/sector to a mobile station is encoded first with an inner Walsh code that is assigned by the system controller for the duration of the user's telephone call, and then a second time with an outer pseudo noise (PN) code. It is further stated that all cells/sectors use the same outer PN code, but with relative code-phase offsets, which requires that all of the cells/sectors be synchronized. Applicant respectfully submits that merely stating that transmitted data is first encoded with an inner Walsh code and then encoded with an outer PN code, does not teach performing a first parallel code multiplying operation and then performing a second parallel code multiplying operation on the outputs of the first parallel code multiplying operation, as recited in the rejected independent claims.

It is important to note that "a parallel code multiplying operation", such as a Fast Hadamard Transform (FHT), multiplies a sequence of symbols by a plurality of codewords, such

as Walsh codes, in parallel to determine which of the plurality of codewords was used to encode the sequence of symbols. Therefore, a parallel code multiplying operation is used when it is not known which codeword of a plurality of codewords was used to encode a sequence of symbols.

In the Gilhousen reference, the inner Walsh code is assigned by the system controller, i.e. the mobile station does not have to "search" all of the possible Walsh codes to determine which inner Walsh code is being used by the cell/sector for a given call. Therefore, while the inner Walsh code may be based on the user ID of the mobile station (see column 6, beginning at line 38), the inner Walsh code that is used is known and is not determined by the mobile station by performing a first parallel code multiplying operation and then performing a second parallel code multiplying operation on the outputs of the first parallel code multiplying operation. This is clearly illustrated in Figures 3 and 10 of Gilhousen, which show cell-site and mobile station receivers in accordance with the teachings of Gilhousen respectively.

In Figure 3, the cell-site receiver multiplies the in-phase and quadrature outer codes PN_I and PN_Q by the inner code PN_U generated using the known mobile unit address to generate PN codes PN_I' and PN_Q', which are then correlated with the received data symbols from a mobile station. From Figure 3 it is clear that the cell-site receiver does not perform a first parallel code multiplying operation and then perform a second parallel code multiplying operation on the outputs of the first parallel code multiplying operation.

In Figure 10, the mobile receiver multiplies the in-phase and quadrature outer codes PN_I and PN_Q by an assigned Walsh code to generate PN codes PN_I' and PN_Q', which are then correlated with the received data symbols from the cell-site. Because the cell-sites all use the same outer codes with different code-phase offsets, the mobile receiver merely uses a phase rotator 532 to align the phase of the outputs of the accumulators 528, 530 with the phase of the pilot carrier (see column 31, lines 35-52). As with Figure 3, it is clear from Figure 10 that the mobile station receiver does not perform a first parallel code multiplying operation and then perform a second parallel code multiplying operation on the outputs of the first parallel code multiplying operation.

The Examiner has also pointed to column 5, lines 63-68 and column 6, lines 1-55 of Gilhousen in support of the rejection of independent claims 1 and 16 under 35 U.S.C. § 102,

alleging that these portions of Gilhousen disclose determining an "overall maximum of the second output symbols output of said second parallel code multiplying operations". These portions of Gilhousen describe the initial pilot synchronization process used by mobile stations to select and monitor the pilot carrier signal of one or more cells/sectors. As noted above, according to Gilhousen all cell/sector transmitters use the same spreading code, with different code-phase offsets to differentiate different cells/sectors. "Use of the same pilot signal code allows the mobile unit to find system timing synchronization by a single search through all pilot signal code phases. The strongest pilot signal, as determined by a correlation process for each code phase, is readily identifiable." (see column 5, line 67 to column 6, line 4).

According to Gilhousen the pilot carrier signals for all cells/sectors are encoded with the same all-zero Walsh code, and are then spread by the outer PN code with the appropriate code-phase offset for the given cell/sector, which allows the initial search for the pilot waveform to ignore the Walsh functions until after the outer code PN synchronization has been obtained (see column 12, lines 36-42). What this means is that the inner all-zero Walsh code is not unique to any given transmitter, therefore it is completely generic and is not "a first codeword identifying a first information", as recited in the rejected independent claims.

In view of the fact that the cited reference fails to teach a key limitation of the rejected independent claims, and thus fails to identically show every element of the claimed invention, as is required for anticipation under 35 U.S.C. § 102, it is submitted that rejected independent claims 1 and 16 distinguish over the cited reference.

By virtue of their dependency from one of the independent claims, the rejected dependent claims 2-15 and 17-29 distinguish over the cited reference for at least the same reasons. However, Applicant respectfully submits that the independent claims disclose additional features that are not taught by the cited reference.

On pages 10 and 11 of the Office Action, the Examiner has pointed to column 10, lines 4-68 and column 11, lines 1-17 of Gilhousen in support of the rejection of dependent claims 3 and 18, alleging that these portions of Gilhousen disclose that "the first code is a truncated Walsh code, the method further comprising padding each set of N consecutive output symbols to a power of 2, wherein the second parallel code multiplying operation comprises a FHT", as

recited in dependent claims 3 and 18. As discussed above with reference to the Examiner's rejection of independent claims 1 and 16, these portions of Gilhousen merely disclose that that data is encoded with an inner code and an outer code, which may be Walsh codes. However, there is no suggestion that either the inner code or the outer code is a truncated Walsh code, and there is certainly no suggestion of padding each set of N consecutive output symbols to a power of 2 and using a FHT to perform the second parallel code multiplying operation.

On pages 18 and 19 of the Office Action, the Examiner has pointed to column 10, lines 4-68 and column 11, lines 1-17 of Gilhousen in support of the rejection of dependent claims 7 and 22, alleging that these portions of Gilhousen disclose that "the second code is an 8-Walsh code, and wherein the first code is a truncated Walsh code in the form of a (12,4) block code which is padded to length 16", as recited in dependent claims 7 and 22. However, as discussed above, there is no suggestion that either the inner code or the outer code is a truncated Walsh code, let alone a truncated Walsh code in the form of a (12,4) block code which is padded to length 16.

On pages 24 to 26 of the Office Action, the Examiner has pointed to the portion of Gilhousen relating to pilot carrier scanning and synchronization in support of the rejection of dependent claim 10, alleging that these portions of Gilhousen disclose "determining the first information from the codeword of the first set of codewords associated with the overall maximum output and determining the second information from the codeword of the second set of codewords associated with the overall maximum output", as recited in dependent claim 10. However, as pointed out above, the signal carriers of different cells/sectors all use the all-zero Walsh code to encode their carrier signal, therefore the all-zero Walsh code does not identify any information.

On pages 26 to 28 of the Office Action, the Examiner has pointed to column 10, lines 4-68 and column 11, lines 1-17 of Gilhousen in support of the rejection of dependent claim 11, alleging that these portions of Gilhousen disclose "determining the first information from the codeword of the first set of codewords associated with the overall maximum output and determining the second information form the codeword of the second set of codewords associated with the overall maximum output" and "the first information comprises a channel

quality indication, and wherein the second information comprises a sector identifier". However, as discussed above, while the code-phase offset outer PN codes may identify a cell/sector, the inner PN code used for the carrier signal is an all-zero Walsh code that provides no information. The all-zero Walsh code may be used to decode the signal carrier, at which point the signal power of the decoded signal carrier may be determined by any conventional signal strength determining means, however, this cannot be construed to mean that the all-zero Walsh code itself identified the signal strength. Therefore, Gilhousen clearly does not teach "determining the first information from the codeword of the first set of codewords associated with the overall maximum output ... [wherein] the first information comprises a channel quality indication".

The comments above regarding the Examiner's rejection of claim 11 are equally applicable to the Examiner's rejections of claims 12, 25 and 26, as clearly the inner code of the encoded carrier signal of Gilhousen does not identify a data rate control indication.

In view of the foregoing, claims 1-29 are believed to be allowable. Reconsideration and withdrawal of the anticipation rejection under 35 U.S.C. § 102 are respectfully requested.

In view of the foregoing, early favorable consideration of this application is earnestly solicited. In the event that that the Examiner has concerns regarding the present response, the Examiner is encouraged to contact the undersigned at the telephone listed below.

Respectfully submitted,

LEGNAIN, ABDELGADER ET AL.

R. Allan Brett
Reg. No. 40,476
Tel.: (613) 232-2486

Date: April 30, 2007

RAB:JFS:sng
Encl.

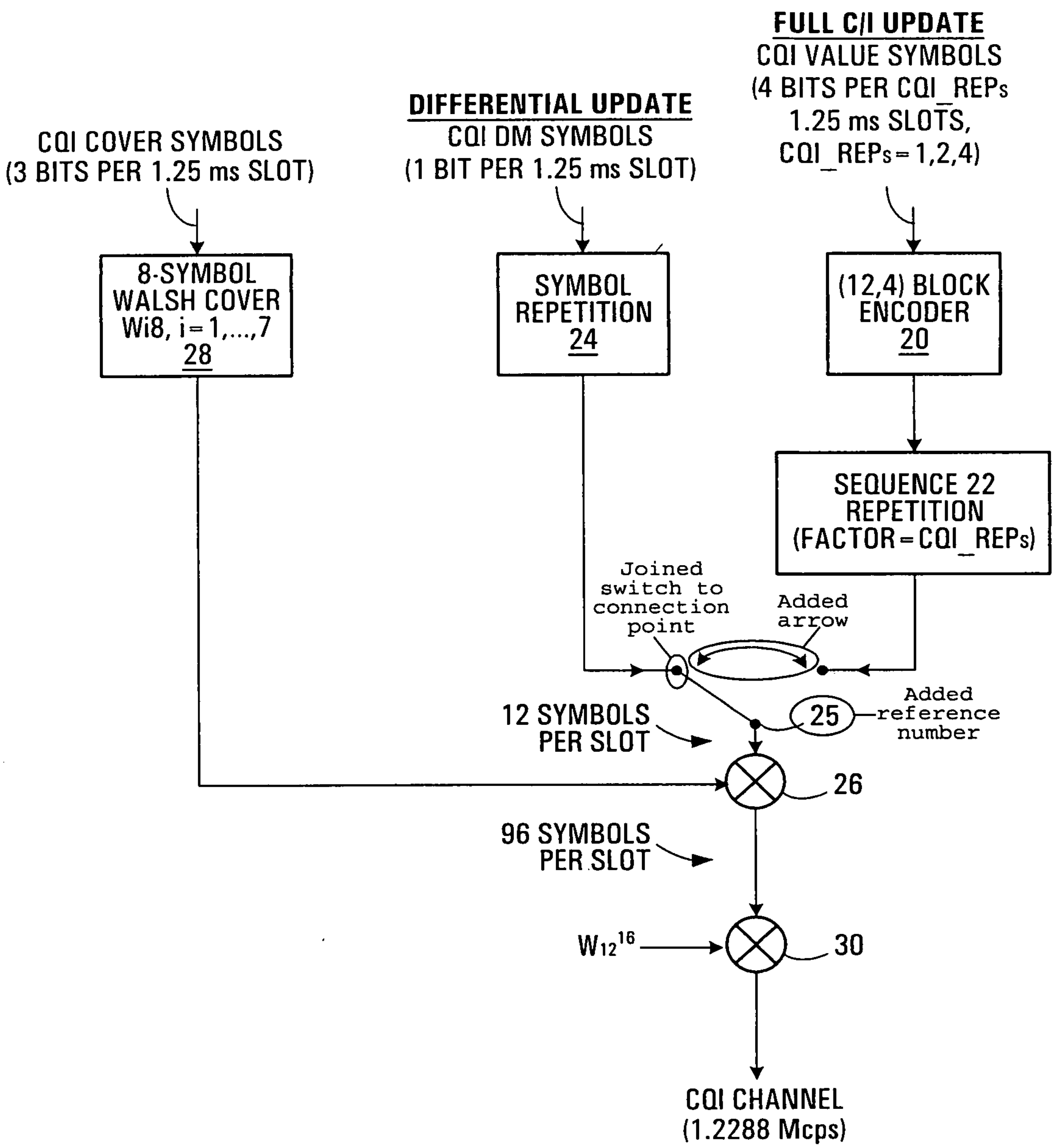
FULL C/I UPDATE
CQI VALUE SYMBOLS
(4 BITS PER CQI_REPs
1.25 ms SLOTS,
CQI_REPs=1,2,4)
DIFFERENTIAL UPDATE
CQI DM SYMBOLS
(1 BIT PER 1.25 ms SLOT)
CQI COVER SYMBOLS
(3 BITS PER 1.25 ms SLOT)
8-SYMBOL
WALSH COVER
Wi8, i=1,...,7
28
SYMBOL
REPETITION
24
(12,4) BLOCK
ENCODER
20
SEQUENCE 22
REPETITION
(FACTOR=CQI_REPs)
Joined
switch to
connection
point
Added
arrow
25
Added
reference
number
12 SYMBOLS
PER SLOT
26
96 SYMBOLS
PER SLOT
W12^16
30
CQI CHANNEL
(1.2288 Mcps)

FIG. 1

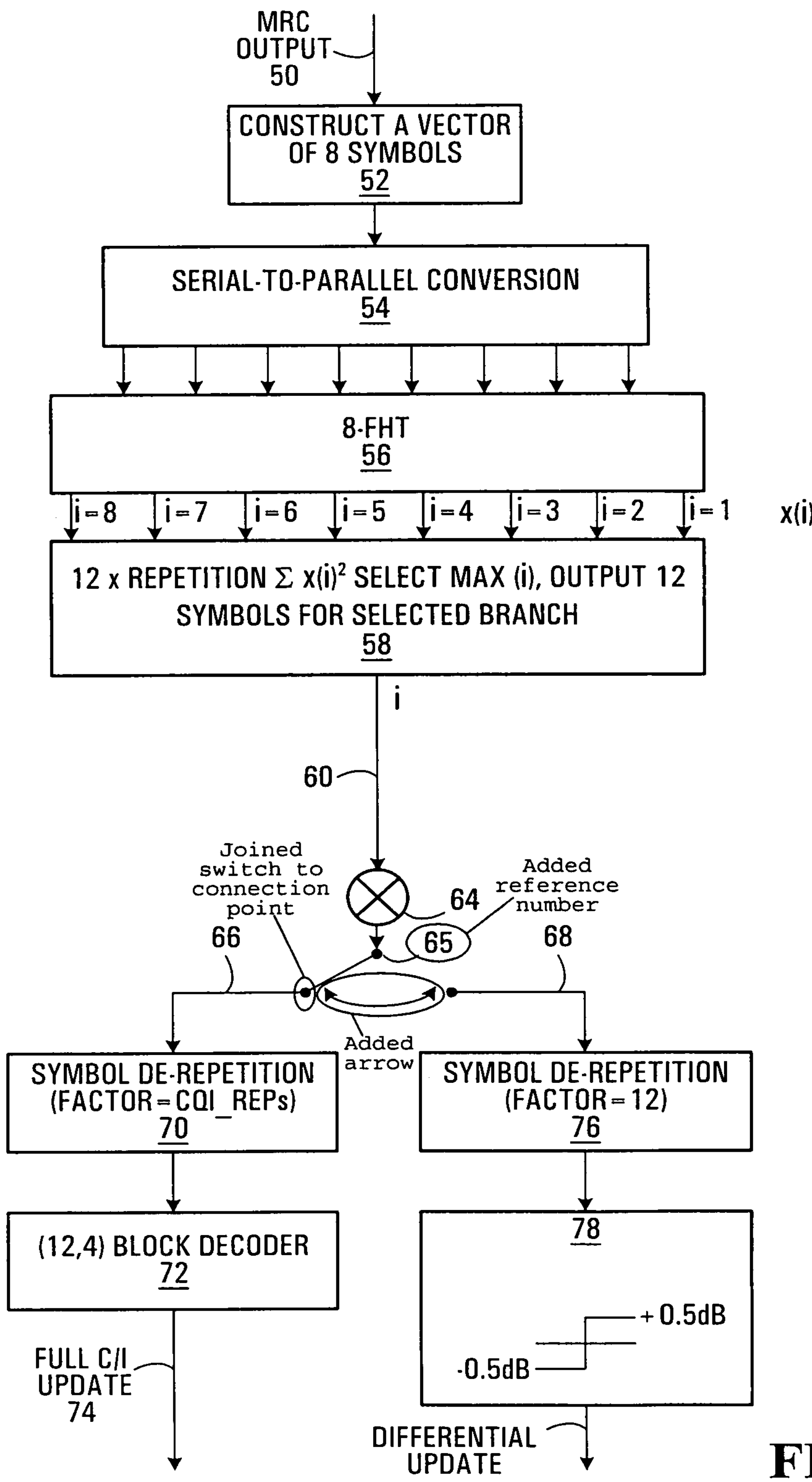
MRC OUTPUT 50
CONSTRUCT A VECTOR OF 8 SYMBOLS 52
SERIAL-TO-PARALLEL CONVERSION 54
8-FHT 56
i=8
i=7
i=6
i=5
i=4
i=3
i=2
i=1
x(i)
12 x REPETITION Σ x(i)² SELECT MAX (i), OUTPUT 12 SYMBOLS FOR SELECTED BRANCH 58
i
60
Joined switch to connection point
64
65
Added reference number
66
68
Added arrow
SYMBOL DE-REPETITION (FACTOR=CQI_REPs) 70
SYMBOL DE-REPETITION (FACTOR=12) 76
(12,4) BLOCK DECODER 72
78
+0.5dB
-0.5dB
FULL C/I UPDATE 74
DIFFERENTIAL UPDATE

FIG. 2